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Bence Lehman

Commissioner of Patents and Trademarks

Margie V. Turner

Attest



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United States Patent [19]

Sainton

[11] Patent Number: **5,761,621**[45] Date of Patent: **Jun. 2, 1998**[54] **APPARATUS AND METHODS FOR NETWORKING OMNI-MODAL RADIO DEVICES**

[75] Inventors: Joseph B. Sainton, Allenic Tex.; Charles M. Leedom, Jr., Falls Church; Eric J. Robinson, Ashburn, both of VA

[73] Assignee: Spectrum Information Technologies, Inc., Purchase, N.Y.

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Related U.S. Application Data

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[52] U.S. Cl. 455/453; 455/454; 455/552

[58] Field of Search 455/438, 453, 455/454, 517, 524, 552; 379/59, 60

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Primary Examiner—Edward F. Urban*Attorney, Agent, or Firm*—Sixbey, Friedman, Leedom & Ferguson; Charles M. Leedom, Jr.; Evan R. Smith[57] **ABSTRACT**

A network and method of operating a network of wireless service providers adapted to interact with a plurality of omni-modal wireless products within a given geographic area in a manner to permit the wireless service providers to "borrow" radio frequencies from other wireless service providers within the same geographic region. As a cellular service provider in a given region finds that one of its service areas or cells has become nearly or fully loaded, frequency could be borrowed from a competitor, such as a PCS provider serving the same region. Selected omni-modal wireless product users in the overloaded area would be told to switch their omni-modal to the "leased" frequency but to use the non-PCS communications protocol appropriate to the type of service desired by the user. Implementation of this method broadly within a given geographic region will have the effect of insuring that the available radio spectrum is used to its maximum capacity to serve the needs of the wireless users on a real time basis.

24 Claims, 16 Drawing Sheets